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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/243,237	02/02/99	MUKHOPADHYAY	D MDO-2471-D1

020793  
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SUITE 3  
KENT WA 98031-6426

IM22/0410

EXAMINER

FORTUNA, A

ART UNIT	PAPER NUMBER
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1723

10

DATE MAILED:

04/10/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.  
09/243,237

Applicant(s)  
MUKhopadhyay

Examiner  
Ana Fortuna

Group Art Unit  
1723



☒ Responsive to communication(s) filed on Jan 16, 2001

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 11-36 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☐ Claim(s) \_\_\_\_\_ is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-15, 25-27, 29, 33, are rejected under 35 U.S.C. 103(a) as being unpatentable over Collentro et al. (5,766,479 , 5,670,053). Reference '479 discloses a process treating water having the components claimed in step a), the process includes removal of hardness ions, dissolved gas, e.g. CO<sub>2</sub>, and more than one reverse osmosis treatment (abstract, column 5, lines 20-68, column 6, lines 55). The product obtained by the process of '479 in a first RO membrane treatment contain ionized material, e.g. silica between 0-20 ppm, and TOC as bicarbonate in the range of 1 to 25 ppm, by further removing gases from the first permeate and treating with a second reverse osmosis membrane module water of 10 mgohm-cm can be produced, therefore, the water produced in the second stage meets the requirement of TOC levels claimed. Reference '479 fails to disclose the process steps in the order and conditions claimed in the present invention, but the products meets the conditions of the product water or treated water as claimed including the TOC and silica levels. Reference '053 also discloses water product with the claimed TOC level, e.g. , 1 to about 5 ppm (column 8, lines 26-31, column 9, lines 24-40, column 10, lines 34-37); removing ionic material in a first reverse osmosis stage up to 95 % is

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disclosed (column 6, lines 55-65, and removal of 90 % of the remaining ions are removed in the second reverse osmosis membrane (column 9, lines 1-17) therefore, removal of silica as claimed should have been expected to the skilled in the art. Reference '053 fails to disclosed the process including all the conditions of the claimed process of making the product water, but teaches the product water with properties., e.g TOC and silica or ionized species level claimed, the degree of purity measured as resistivity greater than 1 also indicates the degree of purity of the produced water in the references above. Regarding claims 29 and 33 water free of virus and bacteria is produced, e.g. water meeting the USP standards (column 9, lines 24-39).

2. Claims 11-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhawe et al. (5,645,727). Reference '727 discloses the product "water" having the TOC, Silica, Boron, bacteria levels claimed (Tables II and III), virus removal is not disclosed, but since the process remove pyrogen and bacteria by reverse osmosis and other polishing steps, virus is also expected to be remove. Reference '727 fails to disclose the process steps for producing water, but discloses the water with the claimed purity. Since product by process claims are product, the rejection is proper.

3. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (5,573,662).

Reference '662 discloses product water with the level of TOC as in the product of the claims above (column 7, Table). The process including the claimed steps for producing the water are not disclosed, but treating the water by reverse osmosis unit, which remove alkalinity and

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hardness ions, vacuum deaeration to remove gases, ion exchange and ultraviolet as water refining steps. Therefore, although the process including pH adjustment is not disclosed, producing water having the TOC level claimed is disclosed.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao et al. (5,250,185). Reference '185 discloses a product water containing 1.2 % of boron (column 7, lines 38-47). The process for producing the product water includes pretreatment, reverse osmosis, pH adjustment prior the reverse osmosis, sodium, calcium, silica sulfate carbonate and TOC are also removed by the process (table I, columns 7-8). It would have been obvious to one skilled in the pertinent art to produce water with the same quality by treating the water at the same pH and by reverse osmosis as suggested by '185.

Response to arguments: reference '479 teaches the water source having organic, or TOC (column 5, 4th paragraph, column 6, first paragraph), and removal of 80 organic by pretreatment, e.g. nanofiltration, and further discloses removal of TDS, which include TOC up to 4.5 Ppm in a first pass RO, the final containing of TDS, which include TOC is expected to be lower after the second pass. Regarding claims 11 and 12, the claims are only limited to a water product containing a low solute, which is disclosed in '479, where the final purity is in the order of 10 Mghoms-cm or greater. Water with the purity claimed is disclosed in the references above independently of the process of purifying the water.

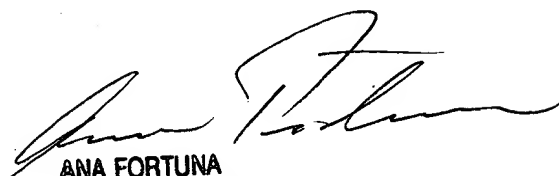
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857.

Facsimile No. (703)305-7718.



ANA FORTUNA  
PRIMARY EXAMINER  
GROUP 1300

Ana Fortuna

April 9, 2001